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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/566,596	06/05/2007	Aimo Jarvinen	07510.0219USWO	5766
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MERCHANT & GOULD PC P.O. BOX 2903 MINNEAPOLIS, MN 55402-0903			EXAMINER ZHENG, LOIS L	
			ART UNIT 1733	PAPER NUMBER
			MAIL DATE 12/02/2010	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/566,596

Applicant(s)

JARVINEN ET AL.

Examiner

LOIS ZHENG

Art Unit

1733

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 May 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 2, 4, 7, 8, 10-13, 15, 16 and 18-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4, 7, 8, 10-13, 15, 16 and 18-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 19 May 2010 has been entered.

Status of Claims

2. Claim 1 is amended in view of applicant's response filed 19 May 2010. Claims 3, 5-6, 9, 14 and 17 are canceled. Therefore, claims 1-2, 4, 7-8, 10-13, 15-16 and 18-20 are currently under examination.

Status of Previous Rejections

3. The rejection of claims 1-17 rejected under 35 U.S.C. 103(a) as being unpatentable over DE 3,819,020(DE'020), further in view of Gonzalez Dominguez et al. US 5,833,830 (Gonzalez Dominguez), and further in view of Rantapuska et al. US 4,917,775 (Rantapuska), and in view of applicant's admitted prior art, and further in view of Haanstra et al. US 6,606,901 B1(Haanstra) is withdrawn in view of applicant's claim amendment filed 19 May 2010.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1, 3 and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites "wherein the measurement of the redox potential **is** performed on a sludge produced in the **two** reactors and **is** performed in the connecting pipe and in the outlet pipe" and "**a** measuring instrument of the redox potential **is** purified at predetermined intervals". If redox potential are measured at the outlets of both reactors, then the reference to the measurement and the measuring instrument should be plural.

Claim 12 recites "wherein at least one measuring instrument of the redox potential is arranged in the connecting pipe and in the outlet pipe. Again, one measuring instrument cannot be arranged in the connecting pipe and the outlet pipe simultaneously.

Additionally, both claims 1 and 12 recite "introduction of zinc powder into the cobalt removal reactor" at the end of the claims. However, both claims also recite at least two reactors for cobalt removal. It is unclear if "the cobalt removal reactor" is directed to the first reactor or the second reactor.

Claim 3 recites the limitation "the solid matter content of the solution" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Therefore, claims 1, 3 and 12 are vague and indefinite.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-2, 4, 7-8, 10-13, 15-16 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE 3,819,020(DE'020) in view of Rantapuska et al. US 4,917,775 (Rantapuska), and in view of applicant's admitted prior art, and further in view of Haanstra et al. US 6,606,901 B1(Haanstra).

Regarding claim 1, DE'020 teaches a three-stage zinc purification process, wherein cobalt is removed in the first two stages (official translation: page 5, 3rd paragraph - page 6, top paragraph). The teaching of DE'020 implies a zinc preparation process utilizing three reactors in series and connecting pipes in between. DE'020 further teaches that measurements of redox potential are made at the second stage(i.e. second reactor) and the results are used to adjust and optimize the feeding of zinc powder (official translation: abstract, page 9, last paragraph; page 12, last paragraph). The redox potential measurement device as taught by DE'020 comprises a platinum electrode and a reference electrode(official translation: page 12, 2nd paragraph). DE'020 further teaches that the adjustment of the redox potential can be utilized in other stages of the purification process(official translation: page 14, last paragraph), which implies that utilizing the redox potential at the first stage(i.e. first reactor) of the purification process is within the scope of DE'020's invention.

Although DE'020 does not explicitly teach that measurements of the redox potential are done in the connecting pipe between the first and the second reactors and in the outlet pipe of the second reactor, the claimed locations of the redox potential

measurement are not is not patentable because shifting the positions of the redox potential measurement at the first and the second stage of the purification process of DE'020 would not have changed the operation of the redox potential measurements. See MPEP 2144.04. In re Japikse, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950). In other words, it would have been within the skill of one of ordinary skill in the art to have positioned the redox potential measuring instruments at any part of the first and the second reactors in the process of DE'020 with expected success of obtaining measurements of redox potential, absent persuasive evidence demonstrating the claimed particular locations are significant.

However, DE'020 neither teaches that the redox potential measurement device is cleaned periodically, nor does DE'020 teach the claimed measurement of acidity and/or basicity determined by BT value measurement.

Rantapuska also teaches measuring of redox potential in a metal recovery process(title, abstract). Rantapuska further teaches that the surface of the measuring electrode can be cleaned to prevent formation of harmful coating layer(col. 3 lines 8-10).

Therefore, it would have been obvious to one of ordinary skill in the art to have periodically cleaned the electrodes of the redox potential measurement device as taught by Rantapuska into the process of DE'020 in order to prevent formation of harmful coating layer as taught by Rantapuska.

As admitted by the applicant on page 2, lines 7-12 of the instant specification, it is know to measure not only the redox potential but also the pH values inside a reactor

and use the results of these measurements to adjust process variable such as zinc consumption.

Therefore, one of ordinary skill in the art would have found obvious to have incorporated pH measurement as admitted by the applicant into each of the metal removing stages of DE'020 in view of Rantapuska in order to optimize process variables such as zinc consumption.

Haanstra teaches that the acidity of a solution can be measured by using a titration method or a pH measurement and the titration method produces more accurate acidity measurements than pH measurement(col. 1 lines 34-40).

Therefore, it would have been obvious to one of ordinary skill in the art to have substituted the pH measurement in the process of DE'020 in view of Rantapuska, and admitted prior art with a titration method as suggested by Haanstra, which includes the claimed measurement of acidity by means of BT value, in order to achieve more accurate determination of solution acidity as taught by Haanstra.

Regarding claims 4, the process of DE'020 in view of Rantapuska, admitted prior art and Haanstra teaches the claimed adjustment of process variables based on the results from redox potential and acidity measurements.

Regarding claim 5, the three metal removing steps as taught by DE'020 reads on the claimed at least two reactors connected in series for metal removal as claimed.

Regarding claim 7, the process of DE'020 in view of Rantapuska, admitted prior art and Haanstra includes acidity measurement devices inside the two reactors as claimed.

Regarding claim 8, DE'020 teaches using a measurement electrode for measuring the redox potential as claimed.

Regarding claim 10 and 18, DE'020 in view of Rantapuska, admitted prior art and Haanstra disclose periodic cleaning of the redox potential measuring instruments as claimed. Although Rantapuska does not teach the instantly claimed interval of 1-2 hours, it would require little more than routine experimentation by one of ordinary skill in the art to determine the optimal or workable ranges of washing interval of the electrodes. See MPEP 2144.05 [R-5]. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Regarding claim 11, since redox potential and acidity are measured in each of the three metal removal stages as taught by DE'020 in view of Rantapuska, admitted prior art and Haanstra, the examiner concludes that the process variables for each of the reactors in the process of DE'020 in view of Rantapuska, admitted prior art and Haanstra can be controlled separately.

Regarding claims 12-13 and 15-16, since the process of DE'020 in view of Rantapuska, admitted prior art and Haanstra comprises the same process steps as claimed and utilizes the same concept of optimization and manipulation of process variables such as zinc consumption using the measurement results from redox potential and acidity, the examiner concludes that the claimed zinc powder feeding device, redox potential and acidity measurement devices, adjustment device and control device are

present the process of DE'020 in view of Rantapuska, admitted prior art and Haanstra in order to perform the intended process variable control and metal impurities removal.

Regarding claims 19-20, due to the presence of the third purification stage(i.e. third reactor), DE'020 inherently discloses that the outlet pipe of the second reactor is a connecting pipe to the third reactor as claimed.

Response to Arguments

8. Applicant's arguments filed 19 May 2010 have been fully considered but they are not persuasive.

In the remarks, applicant argues that the prior art does not teach measurements of redox potential are performed in the connecting pipe between the first and the second reactors and in the outlet pipe of the second reactor.

As set forth above, the claimed locations for the redox potential measurements would have been obvious to one of ordinary skill in the art since sampling anywhere having access to the material in a reactor would have produced expected results of accurate redox potential measurements. Although applicant had argued that the claimed measurement locations allows easier and more often cleaning of the measuring instrument, the instant specification does not disclose such advantages. Therefore, absent persuasive evidence data, in the form of a declaration under 37 CFR 1.132, demonstrating the criticality of the claimed measurement locations, the examiner maintains that the rejection is proper.

Applicant's arguments regarding Rantapuska, Haanstra and admitted prior art individually are not persuasive because the rejection ground is based on combined

teachings of DE'020 in view of Rantapuska, Haanstra and admitted prior art. The applicant is reminded that one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. In re Keller, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); In re Merck & Co., Inc., 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). See MPEP 2145 (IV).

Applicant's argument regarding Gonzalez Dominguez is moot in view of the withdrawn of this reference from the rejection ground.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LOIS ZHENG whose telephone number is (571) 272-1248. The examiner can normally be reached on 9:00am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ Roy King/
Supervisory Patent Examiner, Art
Unit 1733

LLZ